REMARKS

This Amendment is submitted in reply to Office Action. Applicant respectfully requests reconsideration and further examination of the patent application under 37 C.F.R. § 1.111.

Upon entry of the foregoing Amendment claims 1-8, 12-18, 22-41, and 45-49 are pending in the application. The amendments are believed to introduce no new matter, and their entry is respectfully requested. Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections.

Summary of Office Action

Claims 1-17 and 19-49 were rejected under the doctrine of obviousness-type double patenting over claims 1-28 of 6,762,712.

Claims 1-6, 8-17, 19-39, and 41-49 were rejected under 35 U.S.C. 103(a) as being unpatentable over Maurice et al. (6,005,510) in view of Frank et al. (6,731,622).

Claims 7 and 40 were rejected under 35 U.S.C. 103(a) as being unpatentable over Maurice et al. in view of Frank et al. and further in view of McIntosh (6,232,922).

Summary of Amendment

Applicant has amended claims 8, 12, 17, 22, 41, and 45 and has cancelled claims 9-11, 19-21, and 42-44 (without prejudice). Independent claims 8, 17, and 41 were amended to now include the limitation of "circuitry configured to detect a direct-path signal depending on the relative values of the standard deviation and a threshold signal" or "detecting a direct-path signal depending on the relative values of the standard deviation and a threshold signal." Corresponding dependent claims were cancelled.

Remarks regarding double patenting rejection

Claims 1-17 and 19-49 were rejected under the doctrine of obviousness-type double patenting over claims 1-28 of 6,762,712. The double patenting rejection has been overcome by the filing of a terminal disclaimer.

Remarks regarding §103(a) rejections

Claims 1-6, 8-17, 19-39, and 41-49 were rejected under 35 U.S.C. 103(a) as being unpatentable over Maurice et al. (6,005,510) in view of Frank et al. (6,731,622). Examiner states that Maurice discloses a communication system for determine a direct path signal in multipath signals (abstract, figs. 1, 3, 5), comprising: a standard deviation circuitry (computer 6 of fig. 5) configured to determine a standard deviation of a plurality of data values that corresponds to a radio-frequency signal received via a communication link (column 5 line 56 to column 6 line 8); and a threshold circuitry configured to detect a direct-path signal depending on the relative values of the standard deviation and a threshold signal (column 4 line 7 to column 6 line 47). Examiner states that Maurice et al. do not specifically disclose the standard deviation of data values within a data frame and that Frank, in "the same type of invention, discloses the standard deviation of a plurality of data values is calculated within a data frame (figs. 3, 11, 13, column 12 line 13, column 14, line 59, column 15, 51)." The Examiner further states that "it would have been obvious to one skilled in the art at the time the invention was made to have Maurice, modified by Frank to detect a direct path in multipath propagation signals in a CDMA system in order to reduce the variance of estimates as well as more accuracy in calculating the direct path. Applicant respectfully traverses the rejection.

Maurice et al. teach "these normalized values constitute operators that represent dispersion values while being insensitive to the energy levels. Let A1(k) and A2(k) be the operators, relating to the sum channel and the difference channel, for a given k order. The study of the values of these operators, even when the number of valid recurrences is relative small in a given salvo, makes it possible to observe that: <u>for the direct paths, A1(k) and A2(k) have relatively constant values from one direct path to the next, for the multiple paths, at least one of the operators A1(k), A2(k) attains value clearly higher than those that are attained for the direct paths</u>. The determining of the multiple paths is based on this observation..." See Column 6 lines 9-24 (emphasis added). Thus, Maurice et al. teach computer 6 calculating operators A1(k) and A2(k) relating to a sum channel and a difference channel that are then compared from one path to the next. When the two operators stay relatively the same (i.e., relatively constant values) a direct path is indicated and when either value changes such that it is clearly higher a multiple path is indicated. More specifically, Maurice et al. teach

calculating a first normalized standard deviation value A1(k) relating to a sum channel and calculating a second normalized standard deviation value A2(k) relating to a difference channel where A1(k) and A2(k) for a given path are compared to the same operators for a previous path to determine whether the given path is a direct path or a multiple path. Neither A1(k) or A2(k) are compared to a threshold. Thus, Maurice et al. do not teach detecting a direct path signal depending on the relative values of a standard deviation and a threshold signal.

The threshold in Maurice et al. is not used to detect a direct path signal. The threshold is instead used to rid input signals of noise prior to processing. Specifically, Maurice et al. teach a "presence detector 2 rids the signals a1, a2 of their background noise by means of a threshold circuit whose threshold value develops proportionally to the amplitude of the received pulses. This threshold circuit is a constant false alarm receiver or CFAR." See. Column 4 lines 7-11. A CFAR receiver dynamically adjusts a threshold until statistically the number of false alarms (i.e., false positive signal detections) it has are substantially constant, where any received signal having amplitude less that the established threshold is rejected. Thus, the output of the threshold circuitry of presence detector 2 is signal above the threshold established. Although presence detector 2 includes threshold circuitry to rid the input signals of noise, it does not receive, calculate, or compare a standard deviation to a threshold signal, much less use such a comparison to detect a direct path signal. In fact, Examiner states that the standard deviation calculator circuitry is in computer 6 of fig. 5, which is separate from presence detector 2 having the threshold circuit. The system of Maurice et al. teach use of a threshold merely to remove noise from signals output from a sum channel and a difference channel, respectively. The 'noiseless' signals are then used to calculate operators that are compared over time to determine whether a given path is a direct path or a multiple path.

Each of the independent claims now includes the limitation "circuitry configured to detect a direct-path signal depending on the relative values of the standard deviation and a threshold signal" or a comparably worded limitation. Because such a limitation is not taught or suggested by Maurice et al. and Frank et al., Applicant respectively submits that the grounds for rejection have been properly traversed.

Claims 7 and 40 were rejected under 35 U.S.C. 103(a) as being unpatentable over Maurice et al. in view of Frank et al. and further in view of McIntosh (6,232,922). Applicant respectively submits that the grounds for rejection have been properly traversed for at least those reasons given above.

Conclusion

In view of the foregoing, the Applicant respectfully submits that the pending claims are in condition for allowance. Accordingly, the Applicant respectfully requests favorable reconsideration and Notice of Allowance of the claims.

A request for the extension of time and a check in the amount of $225.00 is enclosed. Should any additional fees under 37 CFR 1.16-1.21 be required for any reason relating to the enclosed materials, the Commissioner is authorized to deduct such additional fees from Deposit Account No. 10-1205/TDCO:007.

The Applicant invites the Examiner to contact the undersigned at the phone number indicated below with any questions or comments, or to otherwise facilitate expeditious issuance.

Respectfully submitted,

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